



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/091,528	03/07/2002	Masafumi Sakuma	Q68862	8346

7590 06/18/2003

SUGHRUE MION, PLLC  
2100 Pennsylvania Avenue, NW  
Washington, DC 20037-3213

[REDACTED] EXAMINER

MULLINS, BURTON S

ART UNIT	PAPER NUMBER
2834	

DATE MAILED: 06/18/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

<b><i>Office Action Summary</i></b>	<b>Application No.</b>	<b>Applicant(s)</b>
	10/091,528	SAKUMA ET AL.
	<b>Examiner</b>	<b>Art Unit</b>
	Burton S. Mullins	2834

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

1) Responsive to communication(s) filed on 16 May 2003.

2a) This action is **FINAL**.                    2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4) Claim(s) 1-11 is/are pending in the application.

    4a) Of the above claim(s) 12-15 is/are withdrawn from consideration.

5) Claim(s) \_\_\_\_\_ is/are allowed.

6) Claim(s) 1-11 is/are rejected.

7) Claim(s) \_\_\_\_\_ is/are objected to.

8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

9)  The specification is objected to by the Examiner.

10)  The drawing(s) filed on \_\_\_\_\_ is/are: a)  accepted or b)  objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)  The proposed drawing correction filed on \_\_\_\_\_ is: a)  approved b)  disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)  The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

13)  Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)  All b)  Some \* c)  None of:

1.  Certified copies of the priority documents have been received.

2.  Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.

3.  Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

14)  Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a)  The translation of the foreign language provisional application has been received.

15)  Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

1)  Notice of References Cited (PTO-892) 4)  Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_  
2)  Notice of Draftsperson's Patent Drawing Review (PTO-948) 5)  Notice of Informal Patent Application (PTO-152)  
3)  Information Disclosure Statement(s) (PTO-1449) Paper No(s) 6)  Other: \_\_\_\_\_

## DETAILED ACTION

### *Election/Restrictions*

1. Applicant's election without traverse of claims 1-11 in the response filed 16 May 2003 is acknowledged.

### *Oath/Declaration*

2. The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

The oath or declaration is defective because:

It does not identify the foreign application for patent or inventor's certificate on which priority is claimed pursuant to 37 CFR 1.55, and any foreign application having a filing date before that of the application on which priority is claimed, by specifying the application number, country, day, month and year of its filing.

In particular, the year of the Japanese priority document 2001-084271 is incorrect. This appears to be a typographical error.

### *Claim Objections*

3. Claims 2-4 and 8-11 are objected to because of the following informalities: In claims 2 and 4, delete "determined to be". In claim 3, delete "regarded as" on lines 2 and 4. On the last line, delete "a number" and "second". In claim 4, delete "second". In claim 8, delete "amount" (lines 9-10). Similarly, in claims 9-11, delete "amount". In claim 11, insert "and" before the last phrase. Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1-11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1, recitation “a pair of slots formed a radial direction” is vague and makes no sense. Should this be ---a pair of slots formed in a radial direction---?

In claim 3, recitation “a first opening angle is formed by lines connecting a rotational center of the rotor with two cross points formed by the outer periphery of the rotor and a center-line of a magnetic flux path between the outer side slot and the inner side slot” is vague, indefinite and confusing language. Recitation “another center-lines” and “circumferential directions” is vague and indefinite.

In claims 5-6, recitation “third predetermined number” lacks antecedent basis and is indefinite. Further, in claim 5, the slots are radially separated from each other. Why is the inter slot distance characterized as being “in the circumferential direction”?

In claim 8, recitations “each portion in the inner side permanent magnet and the outer side permanent magnet facing each other in the radial direction is magnetized to be different magnetic pole respectively” and “when a center-line of both the outer side slot and the inner side slot in a circumferential direction of the rotor is located in another center-line of the stator magnetic pole portion in the circumferential direction of the stator” are not idiomatic and make

no sense. What is the “center-line...in a circumferential direction”? Doesn’t the center-line extend in the radial direction?

In claim 10, recitation “more than one unit permanent magnets” is clumsy and vague. Does this mean simply “a plurality of unit permanent magnets”? Further, the language “uniformly formed in size and shape” describing the magnets obviates the need to further describe them as “unit” magnets.

No art has been applied to claims 3-4 and 8-11 because the claim language is incomprehensible. Applicant is required to amend the claims, at which point they will be examined on the merits.

#### ***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1, 5 and 7 are rejected under 35 U.S.C. 102(b) as being anticipated by Fratta (US 4,924,130). Fratta teaches a synchronous reluctance motor comprising: a stator S having a predetermined number of toothed stator magnetic pole portions (not numbered, Fig.7) wound by armature coils (c.8, lines 65-67), and a rotor rotatably supported at an inner peripheral surface of the stator and having a pair of slots or “cavities” formed by intercalary non-ferromagnetic layers I (Fig.6; c.6, lines 40-45) formed in the radial direction and extending along the inner periphery of the stator with a predetermined interval (Fig.6), wherein the pair of slots includes

an outer side slot formed at an outer periphery side of the rotor and an inner side slot formed at all inner side of the rotor (Fig.6), wherein both the outer side slot and the inner side slot extend toward the outer peripheral surface of the rotor to form a rotor magnetic pole portion B' (Fig.6). Further, though not explicitly taught by Fratta, it is nevertheless inherent that “a width of an effective magnetic path between the outer periphery of the rotor and the outer side slot is defined based on a width of a stator magnetic pole portion multiplied by a predetermined number” since Fratta’s effective magnetic path width will always be equal to the product of the stator pole width and an arbitrary “predetermined number” no matter what design constraints are placed on the motor. Similarly, regarding claim 5, the distance between the slots in Fratta will always be some “predetermined” number multiplied by the stator pole width. Regarding claim 7, a permanent magnet M is disposed in each of the outer side slot and the inner side slot formed in the rotor (Fig.6).

*Claim Rejections - 35 USC § 103*

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 2 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fratti. Though Fratti does not teach that the “predetermined number” defining the ratio between the rotor magnetic path and the stator pole widths is between 0.7 and 1.3, or that another

"predetermined number" defining the ratio between the inter-slot distance and the stator pole width is between 1/3 and 1, these ranges would have been an obvious design choice since it has been held that where the general conditions of a claim are disclosed, discovering the optimum or workable ranges involves only routine skill. *In re Aller*, 105 USPQ 233.

### *Conclusion*

10. As explained above in paragraph five, claims 3-4 and 8-11 are so incomprehensible as to preclude a reasonable search of the prior art by the examiner. Applicant is required to submit an amendment which clarifies the claims so that the examiner may make a proper comparison of the invention with the prior art.

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Burton S. Mullins whose telephone number is 305-7063. The examiner can normally be reached on Monday-Friday, 9 am to 5 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nestor Ramirez can be reached on 308-1371. The fax phone numbers for the organization where this application or proceeding is assigned are 305-1341 for regular communications and 305-1341 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 308-0956.



BURTON S. MULLINS  
PRIMARY EXAMINER